WHAT IS CLAIMED IS:

1. A diffusion cell comprising:

a main housing having a receptor chamber, said receptor chamber having an open top and a closed bottom, said receptor chamber adapted to contain a receptor liquid in sufficient quantity to connect with said open top, a receptor liquid refilling port connecting with said receptor chamber directly adjacent said closed bottom, a sampling port connecting with said receptor chamber intermediate said open top and closed bottom but nearer said open top;

a thin membrane mounted on said housing extending across said open top effectively closing such;

a donor housing having a donor chamber connecting with said membrane, a media to be supplied to said donor chamber and in contact with said membrane; and

a quick release clamping apparatus engaging with said donor housing functioning to tightly press said donor housing onto said membrane and said main housing.

2. The diffusion cell as defined in Claim 1 wherein:

said sampling port including a capillary tube, the function of said capillary tube to minimize the residual volume of a sample that has been extracted through said sampling port.

3. The diffusion cell as defined in Claim 1 wherein:

said donor housing including a disc which includes a center opening, said donor housing also including a cap which is mounted onto said disc, said donor chamber comprising said center opening.

4. The diffusion cell as defined in Claim 3 wherein:

said cap including a viewing port, said viewing port to facilitate the physical examination of said membrane at said open top for the purpose of insuring that there are no air bubbles located at said open top in contact with said membrane.

5. The diffusion cell as defined in Claim 1 wherein:

both said receptor liquid refilling port and said sampling port including a LUER fitting, said LUER fitting facilitating quick connection and disconnection with an appropriate liquid supply and/or discharge conduit.

6. The diffusion cell as defined in Claim 3 wherein:

said quick release clamping apparatus comprising a U-shaped clamp assembly which has an open cavity, said main housing to be located within said open cavity with one plate being mounted on said main housing and the remaining said plate being mounted against said cap, said one plate and said remaining plate being spring biased toward each other when installed on said main housing applying a continuous bias tending to keep said donor housing in tight connection with said main housing;

7. A diffusion cell comprising:

a main housing having a receptor chamber, said receptor chamber having an open top and a closed bottom, said receptor chamber adapted to contain a receptor liquid in sufficient quantity to connect with said open top, a receptor liquid refilling port connecting with said receptor chamber directly adjacent said closed bottom, a sampling port connecting with said receptor chamber intermediate said open top and closed bottom but nearer said open top;

a thin membrane mounted on said housing extending across said open top effectively closing such;

a donor housing having a donor chamber connecting with said membrane, a media to be supplied to said donor chamber and in contact with said membrane; and

said sampling port including a capillary tube, the function of said capillary tube to minimize the residual volume of

a sample that has been extracted through said sampling port.

8. The diffusion cell as defined in Claim 7 wherein:

said donor housing including a disc which includes a center opening, said donor housing also including a cap which is mounted onto said disc, said donor chamber comprising said center opening.

9. The diffusion cell as defined in Claim 8 wherein:

said cap including a viewing port, said viewing port to facilitate the physical examination of said membrane at said open top for the purpose of insuring that there are no air bubbles located at said open top in contact with said membrane.

10. The diffusion cell as defined in Claim 7 wherein:

both said receptor liquid refilling port and said sampling port including a LUER fitting, said LUER fitting facilitating quick connection and disconnection with an appropriate liquid supply and/or discharge conduit.

11. A diffusion cell comprising:

a main housing having a receptor chamber, said receptor chamber having an open top and a closed bottom, said receptor chamber adapted to contain a receptor liquid in sufficient quantity to connect with said open top, a receptor liquid refilling port connecting with said receptor chamber directly adjacent said closed bottom, a sampling port connecting with said receptor chamber intermediate said open top and closed bottom but nearer said open top;

a thin membrane mounted on said housing extending across said open top effectively closing such;

a donor housing having a donor chamber connecting with said membrane, a media to be supplied to said donor chamber and in contact with said membrane; and

said donor housing including a disc which includes a center opening, said donor housing also including a cap which is mounted onto said disc, said donor chamber comprising said center opening.

12. The diffusion cell as defined in Claim 11 wherein:

said cap including a viewing port, said viewing port to facilitate the physical examination of said membrane at said open top for the purpose of insuring that there are no air bubbles located at said open top in contact with said membrane.

13. The diffusion cell as defined in Claim 11 wherein:

both said receptor liquid refilling port and said sampling port including a LUER fitting, said LUER fitting facilitating quick connection and disconnection with an appropriate liquid supply and/or discharge conduit.